Northern Monitoring Program News #1

March 26, 2007

In February 2006, the Northern Monitoring Program (NMP) grew out of the merger of the Northeastern and North Central FIA programs. Dennis May is the Program Manager of the Northern Research Station's FIA program and Chip Scott is the Program Manager for NMP. The goal of NMP is to develop leading edge forest ecosystem monitoring methods and tools to help FIA and other organizations monitor forests, resulting in compatible results across the landscape. While our name is derived from the Northern Research Station, our methods and tools can be applied at the sub-state (single ownership), State, Regional, national and international levels. The following is a description of our on-going projects.

Monitoring Toolkit: The vision for the Monitoring Toolkit is to create a suite of four independent but linked software tools: Planning, Portable Data Recorder, Compilation, and Analysis. Chuck Barnett is now serving as the Project Manager for the Monitoring Toolkit. A proposal to design the Planning Tool was submitted to the Inventory and Monitoring Technology Development Committee for possible funding in FY08. The proposal was developed collaboratively with the National Forest System (NFS) Regions, The Nature Conservancy, and NMP. Jay Solomakos modified his Portable Data Recorder software, Field Data Manager (FDM), for use in the WisCFI (see below). The PDR tool is functioning and is now being modified for Phase 3 plots. The Compilation team is starting the design phase for the Protocol Sample Database which will give NIMS (and FDM and FIDO) the flexibility needed to handle various FIA and NMP configurations. The Univ. of Nevada – Las Vegas (UNLV) staff is working on this, along with the new D-Team leader, Bryan Lanier. They will also code the computed variables, such as the Wisconsin Forest Type algorithm. As for the analytical tool, Randy Morin is leading a team to identify the key functional requirements. We are evaluating alternative GIS tools (TableMaker and RIPL) to select the plots, and then pass the plot list and the user to Forest Inventory Data Online (FIDO) for analysis and presentation of tables. This functionality will be important for some time, since FIDO will likely never have the full GIS functionality available to the user on their desktop. The first version of the last three tools is due to be delivered to Wisconsin in August 2007.

WisCFI: The Wisconsin Department of Natural Resources (WDNR) asked NMP to help them develop a Continuous Forest Inventory (CFI) program on their state-owned lands. With WDNR funding, NMP has worked with them to define monitoring objectives, create a sampling and plot design, a field guide, data recorder software, compilation and analytical tools. By basing their approach on the FIA design and field methods, they will be able to compare their lands with the surrounding context to demonstrate the sustainable use of their forests.

Based on their objectives and funding levels, NMP determined that the best option was to reduce the number of subplots to 2, but intensify the sample to one plot for every 150 ac, thus enabling crews to observe multiple plots per day. Also, one third of the plots will be measured for a modified P3 suite of attributes, emphasizing understory vegetation, invasive plants, and habitat type.

Katherine Johnson customized the FIA field guide based on WDNR needs. It is available at: ftp://ftp2.fs.fed.us/incoming/ne/kjohnson/WisCFI_manual/ In order to meet the needs for

plot intensification flexibility, Andy Lister developed a new way of identifying plot locations in a spatially balanced way (manuscript is in review). Jay Solomakos' FDM is so flexible, that Katherine was able to make most of the changes herself without Jay having to write the code. Chuck Veneklase (PNW-FIA) and Lisa Mahal (UNLV) have been funded to make the modifications needed for the Veg PDR program. Fieldwork began in February 2007.

Meanwhile using WDNR funds, the UNLV team, led by Charles Washington and Brian Blom, is adding the capacity needed to make NIMS (and FIDO) more flexible. This is something NIMS folks have wanted for some time, so this is definitely a Win-Win situation. WDNR funding was also used to hire a contractor, Paul Lundquist, in St. Paul to ensure that FIDO can produce results for WDNR and to accelerate FIDO's development, especially in the spatial arena, for all FIDO users.

Maryland DNR: The Maryland Dept. of Natural Resources has been conducting a continuous forest inventory of their state-owned forest for more than two decades. Rather than them continuing to ask FIA to process the data, Chip Scott was able to modify his TabGen program to analyze their data. They would like some further refinements to the program, plus they want help with delineating and attributing plot data to stands using remote sensing and spatial modeling tools. The methods developed may prove useful to other forest managers, such as NFS. Andy Lister is leading this effort.

Indiana DNR: Jim Westfall is taking the lead on working with the forestry folks within Indiana Dept. of Natural Resources. We have agreed in principle to help them conduct a very similar inventory to the WisCFI. They hope to start fieldwork by the fall.

TNC in the Catskills: The Nature Conservancy (TNC) in the Catskills of New York has asked for assistance in developing a monitoring system for this important watershed for New York City. Jim Westfall will take the lead on this effort. Chip and Jim will meet with TNC in Albany in April to discuss the first several monitoring steps. This is an exciting opportunity, since TNC was our original partner in creating the Monitoring Toolkit effort.

Mark Twain National Forest: NMP is working with Mike Schanta of the Mark Twain National Forest (MTNF), Region 8 and Region 9 on developing a Forest-level monitoring system that meets their needs. We are working through the monitoring steps: 1) setting broad objectives, 2) identifying monitoring questions, 3) selecting attributes, 4) specifying cost and precision constraints, and 5) gathering existing variability data. The next step is to identify sampling design alternatives, such as increasing the intensification of the FIA grid, or shifting to a "tactical inventory" much like the WisCFI. R8 and R9 plan to develop a proposal for expanding the work on the MTNF to all Forests in the two Regions.

Work continues on the mid-scale mapping and estimation effort being done in collaboration with RSAC (Remote Sensing Applications Center) and Ron McRoberts (NRS-FIA). Intensive ground sampling of stands using FIA subplots began in Feb. which will aid in comparing modeled estimated with true stand values. This effort will help localize the plot data collected as part of the Forest-level inventory.

National Forest Systems: Chip Scott and Randy Morin attended the National Forest System (NFS) Regional Veg Coordinators' meeting in Salt Lake City Feb. 6-8. Chip gave two

talks – one on NMP and how we might partner with the Regions, and one on the Monitoring Toolkit. Randy Morin and Sonja Oswalt (SRS-FIA) gave a presentation on using FIA data for National Forest analyses. The Coordinators were very supportive of NMP and the Toolkit. They created an analytical tool team to address their needs. Chip was asked to serve on the Vegetation Diversity Team for the Environmental Management System (an annual evaluation of each National Forest using ISO 14001). Chip was also asked to serve on a team to coordinate among the various vegetation inventory and monitoring efforts within the Forest Service (NFS, S&PF, and FIA). Randy and Sonja were asked to serve on a team to provide guidance on NFS reporting needs using FIA data. They will work to avoid producing different National Forest estimates in State and National Forest reports.

Honduras: Chip Scott first started providing assistance to the Honduran forest service (COHDEFOR) in 1995. After a 9-year hiatus due to Hurricane Mitch, he returned in November 2006 to resume the work on developing an inventory system for National Forest management planning. During his January 2007 trip they conducted the first test of remeasuring inventory plots – something new in Honduras. The test went so well that their Chief decided that all inventory plots for management planning would be permanent plots, so they will be better able to estimate change and to ensure the sustainable use of their pine forests. In addition, Carleen Yocum (Wayne National Forest) and Chip provided technical assistance on regeneration sampling following harvest. Vicente Monleon (PNW-FIA) provided a very helpful review of the methods. The resulting recommendations for improving and speeding up the survey are being implemented. An FIA crew from Puerto Rico was sent March 5-16 to provide further training on installing and remeasuring permanent plots and on using the new regeneration sampling methods. Chip will return in May to begin guiding the work on the analytical software. The work is funded by USAID.

Russia: Russia has recently passed the new Forest Code which revamps the management structure and monitoring methods of the forests of Russia (mostly federally owned). For most of the 20th century, they used a stand-based inventory approach, which was then aggregated to the national level. The new Code creates a sample-based national forest inventory. This new NFI will be similar to what FIA and other countries are doing, however, the scale and inaccessibility of much of the forests will require some novel approaches. They asked Chip to present a paper on FIA in St. Petersburg in October and to walk them through the monitoring steps during a visit in February. They greatly appreciated the clear and systematic approach to setting up their NFI. At Chip's suggestion, they also held their first NFI users' group meeting – forest industry, universities, NGO's and international organizations. The users asked that these meetings continue. Chip will work with Ron McRoberts and others to create an international technical team (Canada, Finland and Sweden) with the hope of returning in April and June to begin developing the remote sensing and sampling design for the NFI. The work is funded by International Programs of the US Forest Service.

For further information, please visit our website: www.nrs.fs.fed.us/monitoring